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10/685,878	10/14/2003	Steven D. Cook	SJO920030025US1	5926

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EXAMINER	
CHANG, JUNGWON	

ART UNIT	PAPER NUMBER
2154	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/685,878

Applicant(s)

COOK ET AL.

Examiner

Jungwon Chang

Art Unit

2154

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 November 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,5-10,16,18-23 and 25 is/are pending in the application.
- 4a) Of the above claim(s) 3,4,11-15,17 and 24 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,5-10,16,18-23 and 25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
- Paper No(s)/Mail Date _____

- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. This action is in response to Applicant's election of Group I, claims 1-2, 5-10, 16, 18-23 and 25. Claims 3-4, 11-15, 17 and 24 are withdrawn.
2. Claims 1-2, 5-10, 16, 18-23 and 25 are presented for examination.

Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. Claims 1-2, 5-10 and 16 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Page 9, paragraph 0022 of the specification, which recites in part:

[0022] This signal-bearing medium may comprise, for example, first memory 122, first non-volatile storage 124, second memory 128, second non-volatile storage 130, first data disks 136, and/or second data disks 144. Alternatively, the instructions may be embodied in a signal-bearing medium such as the optical data storage disc 200 shown in FIG. 2. The optical disc can be any type of signal bearing disc or disk, for example, a CD-ROM, CD-R, CD-RW, WORM, DVD-R, DVD+R, DVD-RW, or DVD+RW. Additionally, whether contained in the cluster 100 or elsewhere, the instructions may be stored on any of a variety of machine-readable data storage mediums or media, which may include, for example, a "hard drive", a RAID array, a RAMAC, a magnetic data storage diskette (such as a floppy disk), magnetic tape, digital optical tape, RAM, ROM, EPROM, EEPROM, flash memory, magneto-optical storage, paper punch cards, or any **other suitable signal-bearing media including transmission media such as digital and/or analog communications links, which may be electrical, optical, and/or wireless**. As an example, the machine-readable instructions may

comprise software object code, compiled from a language such as "C++".

The passage above, signal-bearing medium includes both physical structure and transmission media. The computer readable medium must be physical structure which provides the functional descriptive material in usable form to permit the functionality to be realized with the computer. A program product which does not explicitly include such a medium, a program per se, a signal or other type of transmission media that fails to include the hardware necessary to realize the functionality, and a piece of paper with the functional descriptive material written on it are all examples of media which are not believed to enable the functionality to be realized with the computer. Therefore, claims 1-2, 5-10 and 16 are non-statutory under 101.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-2, 5-10, 16, 18-23 and 25 are rejected under 35 U.S.C. 102(b) as being anticipated by Yamagami (US 2002/0095489).

7. As to claim 1, 18 and 22, Yamagami discloses the invention as claimed, including a signal bearing medium tangibly embodying a program of machine-readable

instructions executable by a digital processing apparatus to perform a method for remotely monitoring activity (fig. 9), the method comprising the following operations:

- generating first server heartbeat information at a first server at a local site (101a, fig. 1; page 1, 0010);

- storing the first server heartbeat information on a first primary site disk at the local site (111a, fig. 1);

- sending the first server heartbeat information from the first primary site disk, to a first secondary site disk at a remote site (150, fig. 1; page 4, 0053, "writes the heartbeat message");

- receiving information from a second secondary site disk at the local site (111a, 112a, fig. 1; page 4, 0054, "two or more heartbeat PVOLs, 111a"); and

- determining if the information received from the second secondary site disk includes updated heartbeat information (730, fig. 7; page 8, 0101).

8. As to claim 2, Yamagami discloses wherein the method further comprises the following operations:

- generating second server heartbeat information at a second server at the remote site (101b, fig. 9);

- storing the second server heartbeat information on a second primary site disk at the remote site (110b, 113a, 112b, fig. 9);

- sending the second server heartbeat information from the second primary site disk, to a second secondary site disk at the local site (151, fig. 1);

receiving information from the first secondary site disk at the remote site (300', fig. 9; page 9, 0018-0019); and

determining if the information received from the first secondary site disk includes updated heartbeat information (730, fig. 7; page 8, 0101).

9. As to claim 5, Yamagami discloses wherein the method further comprises the operation of establishing a PPRC pair using a Read From Secondary option, wherein the PPRC pair comprises the first primary site disk and the first secondary site disk (page 4, 0056, "remote copy mechanism"; page 5, 0058; page 6, 0067, "remote coy heartbeat").

10. As to claim 6, Yamagami discloses wherein the method further comprises the operation of establishing first and second PPRC pairs using a Read From Secondary option, wherein the first PPRC pair comprises the first primary site disk and the first secondary site disk, and the second PPRC pair comprises the second primary site disk and the second secondary site disk (page 4, 0056, "remote copy mechanism"; page 5, 0058; page 6, 0067, "remote coy heartbeat").

11. As to claim 7, Yamagami discloses wherein PPRC is used to perform the sending operation (page 4, 0056, "remote copy mechanism"; page 5, 0058; page 6, 0067, "remote coy heartbeat").

12. As to claim 8, Yamagami discloses wherein the sending operation comprises: receiving the first server heartbeat information from the first primary site disk; and attempting to transmit the first server heartbeat information over a communications link to the remote site (300, fig. 1).

13. As to claim 9, The Yamagami discloses wherein the first server heartbeat information comprises a timestamp (320, fig. 3).

14. As to claim 10 and 16, Yamagami discloses wherein: the operations of receiving information from the first secondary site disk and determining if the information received from the first secondary site disk includes updated heartbeat information, are periodically repeated at a first frequency; and the operations of generating first server heartbeat information, storing the first server heartbeat information, and sending the first server heartbeat information, are periodically repeated at a second frequency that is at least as large as the first frequency (page 5, 0057, "predetermined intervals...every second, every 10 seconds...").

15. As to claim 19, Yamagami discloses further comprising: a second storage system located at the remote site and coupled to the first storage system (110b, fig. 1), wherein the second storage system includes a second primary site disk (111b, fig. 1) and the first secondary site disk (second 11b, 112b, fig. 1); a second server (130b, fig. 1) located at the remote site and coupled to the second storage system (fig. 1), wherein

the second server is programmed to perform operations in conjunction with the second storage system, for remotely monitoring activity, the operations comprising: generating second server heartbeat information (page 9, 0118-0119); storing the second server heartbeat information in the second primary site disk (111b, fig. 1); sending the second server heartbeat information from the second primary site disk at the remote site to the second secondary site disk at the local site (150, 151, fig. 1; 300', fig. 9); receiving information from the first secondary site disk at the remote site (300', fig. 9; page 9, 0018-0019); and determining if the information received from the first secondary site disk includes updated heartbeat information (730, fig. 7; page 8, 0101).

16. As to claim 20, Yamagami discloses wherein: the operations of receiving information from the first secondary site disk and determining if the information received from the first secondary site disk includes updated heartbeat information, are periodically repeated at a first frequency; and the operations of generating first server heartbeat information, storing the first server heartbeat information, and sending the first server heartbeat information, are periodically repeated at a second frequency that is at least as large as the first frequency (page 5, 0057, "predetermined intervals...every second, every 10 seconds...").

17. As to claims 21 and 23, Yamagami discloses a computing system, comprising:
means for generating first server heartbeat information at a first server at a local site (101a, fig. 1; page 1, 0010);

means for storing the first server heartbeat information on a first primary site disk at the local site (111a, fig. 1);

means for transferring the first server heartbeat information from the first primary site disk, to a first secondary site disk at a remote site (150, fig. 1; page 4, 0053, "writes the heartbeat message");

means for receiving information from the first secondary site disk (300', fig. 9);

means for determining if updated heartbeat information has been stored on the first secondary site disk (730, fig. 7; page 8, 0101);

means for generating second server heartbeat information at a second server at the remote site (101b, fig. 9);

means for storing the second server heartbeat information on a second primary site disk at the remote site (110b, 113a, 112b, fig. 9);

means for transferring the second server heartbeat information from the second primary site disk, to a second secondary site disk at the local site (151, fig. 1);

means for receiving information from the second secondary site disk (111a, 112a, fig. 1; page 4, 0054, "two or more heartbeat PVOLs, 111a"); and

means for determining if updated heartbeat information has been stored on the second secondary site disk (730, fig. 7; page 8, 0101).

18. As to claim 25, Yamagami discloses wherein PPRC is used to perform the sending operations (page 4, 0056, "remote copy mechanism"; page 5, 0058; page 6, 0067, "remote coy heartbeat").

Conclusion

19. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Watanabe, US 2005/0033828, Fujibayashi et al, US 2004/0078644, Yamagami, US 7,152,078, Tekeda et al, US 7,076,620, disclose a system and method for backup and restoring storage volumes in a storage area network.

20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jungwon Chang whose telephone number is 571-272-3960. The examiner can normally be reached on 6:30-2:00 (Monday-Friday).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan J. Flynn can be reached on 571-272-1915. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information

Application/Control Number:
10/685,878
Art Unit: 2154

Page 10

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

January 21, 2008

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